

(AP20 Rec'd PCT/PTO 13 FEB 2006

COMPOSITIONS AND METHODS FOR REDUCING THE RISK OF
EPILEPTIC OCCURRENCE AND/OR FOR TREATMENT OF
SEIZURE DISORDERS

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CONTINUING DATA

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This application is a 371 of PCT/IL04/00745 filed 08/12/2004.

FIELD OF THE INVENTION

- 10 The present invention relates to compositions and methods of using such compositions for the treatment and prevention of epilepsy and related disorders.

BACKGROUND OF THE INVENTION

- 15 Epilepsy is one of the most common chronic neurological disorders. The disease is characterized by recurrent seizures, which originate from abnormal and excessive activity of cerebral neurons and result in a paroxysmal disorganization of brain function. Types of epilepsy include partial (symptomatic) and generalized idiopathic seizures. Partial epilepsy is
20 "localization related" and originates in a limited area of the brain. The generalized form of epilepsy is not caused by a specific brain lesion or disease, other than a possible genetic propensity to generate seizures. Generalized, or *grand mal*, seizures include tonic-clonic seizures, in which the entire body undergoes convulsions. Left untreated, epilepsy can degenerate into status epilepticus, a potentially fatal neurological emergency [*Antiepileptic Drugs*; eds. R.H. Levy, R.H. Mattson and B.S. Meldrum; 4th Edition, Raven Press, NY, NY; Aicardi. *Epilepsy in children*. 2nd edition. New York: Raven Press, 1994: 18-43]. Idiopathic epilepsy appears to be a heritable disorder though little is known about the precise genetic or biochemical defects involved
30 (Andermann In *Genetic Basis of the Epilepsies*, eds. Anderson VE, Hauser WA, Penry JK, Sing CF. New York: Raven Press 1982: 355-74; Anderson EV, Hauser WA. Genetics. In: Dam M, Gram L, ed. *Comprehensive Epileptology*. New York: Raven Press 1990:57-76). Recent research has indicated the possibility of genetic predisposition to the development of localization-related
35 epilepsy, in particular post-traumatic epilepsy. In this type of epilepsy, a head injury is the resolving exogenous factor inducing the disease with a low penetration of the pathological hereditary factor.

- Over 53 million people worldwide suffer from epilepsy, with 2.5 million who have had, or who will have seizures at some point in the U.S. alone.
40 Epilepsy primarily affects children and young adults. Almost 50% of new epilepsy cases occur prior to age 25. About 28% of epileptic patients have intractable epilepsy that is resistant to antiepileptic treatment. A wide spectrum of antiepileptic drugs is used for epilepsy treatment [*Antiepileptic Drugs*; eds. R.H. Levy, R.H. Mattson and B.S. Meldrum; 4th Edition, Raven Press, NY, NY; Aicardi, *Epilepsy in children*, 2d Edition, Raven Press, 1994].
45 Nevertheless, a goal, that was expressed 10 years ago (Drugs and Market